

Lead and Copper Rule (LCR)

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History

- ▶ Original rule published in June of 1991
- ▶ Minor Revisions in January of 2000 (LCRMR)
 - Corrections and clarifications to simplify compliance
 - Violations reduced, Monitoring Req., *etc.*
- ▶ Short Term Regulatory Revisions finalized in October 2007

Short Term Regulatory Revisions

- ▶ Public Notice and Public Education
 - Provide results to targeted homes in sample set
 - Modifications to the public education mandatory language
- ▶ Corrections and clarifications to monitoring period requirements
- ▶ Notification to States of changes to the water system that may alter corrosion in water

Lead and Copper in Drinking Water

- ▶ Rarely present in the source water
 - Wells and surface water intakes
 - Can be mixed with multiple sources (Entry Point)
 - Affected by change in treatment (Corrosive Inhibitors)
- ▶ Corrosive water can leach lead and copper into the plumbing system
 - Water with low hardness (soft water)
 - Water with low pH

High Risk Areas

- ▶ Tier Levels (Homes built between 1982- 1988)
 - Tier I – Single family structures
 - Tier II – Multi-family structures
 - Tier III – Single and Multi-family structures built before 1983
- ▶ Select Tier 1 sites first, and if needed select Tier 2 and Tier 3 sites
- ▶ Representative sites can be selected in enough Tier sites cannot be found

Basic Requirements

- ▶ Community and Non-Transient Non-Community water systems
- ▶ Samples collected from consumers homes connected to the distribution system
- ▶ Must meet action levels
 - Lead – 0.015 ppm or 15 ppb
 - Copper – 1.3 ppm
- ▶ Treatment and Public Education

Protecting Public Health

- ▶ Lead
 - Effects learning abilities in children
 - Increased blood pressure and kidney problems in adults
- ▶ Copper
 - Causes stomach and intestinal distress
 - Complications with Wilson's Disease (Liver)



Sample Collection

- ▶ Collect a set of samples that will be analyzed for both lead and copper from each sample bottle
- ▶ The water system is responsible for collecting and shipping the samples
- ▶ The State is responsible for analyzing the samples
- ▶ Sample Set - number of samples based off of population



Routine Monitoring

Water System Population	Initial/Routine
>100,000	100
10,001 – 100,000	60
3,301 – 10,000	40
501 – 3,300	20
101- 500	10
< 100	5

- ▶ Initial Monitoring
 - For new systems coming online
 - 2 Consecutive 6 month periods
- ▶ Routine Monitoring
 - After an action level exceedance
 - After a failure to monitor
 - 2 Consecutive 6 month periods

Reduced Monitoring

Water System Population	Reduced
>100,000	50
10,001 – 100,000	30
3,301 – 10,000	20
501 – 3,300	10
101- 500	5
< 100	5

- ▶ If lead and copper ALs are below 0.005 ppm and 0.65 ppm respectively
 - Monitor every three years
- ▶ If lead and copper ALs are below 0.015 ppm and 1.3 ppm, respectively
 - Two consecutive years of annual monitoring

Sampling Periods



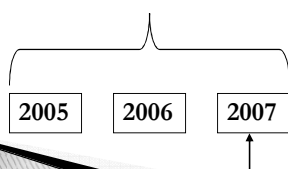
► Initial and Routine

- 1st 6 Months – January 1st to June 30th
- 2nd 6 months – July 1st to December 31st

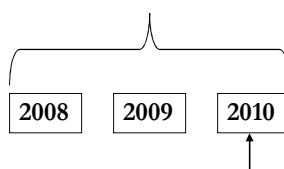
► Reduced Monitoring

- Warmest temperature months
- June 1st to September 30th (Annual and Triennial)

3YR Compliance Period



3YR Compliance Period



Sample Collection

- Samples need to be secured during shipping with completed paperwork
- Samples must reach the lab within 14 days to be properly preserved by acid fixation
- Correct number of samples must be collected



Tap Collection

- ▶ Tap samples are first draw
 - First Draw
 - Appropriate tap
 - Regularly used
 - Interior Source (Kitchen or Lavatory)
- ▶ Water sitting no more than 12 hours but no less than 6 hours
 - Morning
 - Evening



Sample Collector

- ▶ Can be collected by the water operator or by the resident
 - Need the name and address
 - Location of sample collection (kitchen or lavatory)
- ▶ If collected by the operator, the operators' name is used for the collector
- ▶ If collected by the resident, use the customers' name and the instruction form
 - Given to the water system in the sample kit (make extra copies)
 - Instructions required if sample is to be collected by customer

Customer Information

TO BE COMPLETED BY RESIDENT:

Water was last used: Time: _____ Date: _____

Sample was collected: Time: _____ Date: _____

Sample was taken from: KT (kitchen tap) LT (lavatory tap)
(Please circle only one)

Name: _____ Address: _____
(Last Name, First Name)

Signature: _____ Date: _____

Sample Labels

Attn: Louis Wales
Lead and Copper Sample Bottles
New Orleans Lab
3101 W Napoleon Ave
Metairie, LA 70001

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LEAD & COPPER FIRST DRAW COLD DRINKING WATER TAP SAMPLE PWS ID: LA1234567 SUPPLY: ABC WATER SYSTEM L1234567 SAMPLE COLLECTION AND COLLECTOR INFORMATION: TAP CODE: KT (Kitchen) LT (Lavatory) Street Address:	LEAD & COPPER FIRST DRAW COLD DRINKING WATER TAP SAMPLE PWS ID: LA1234567 SUPPLY: ABC WATER SYSTEM L1234567 SAMPLE COLLECTION AND COLLECTOR INFORMATION: TAP CODE: KT (Kitchen) LT (Lavatory) Street Address:
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Attn: Louis Wales
 Lead and Copper Sample Bottles
 New Orleans Lab
 3101 W. Napoleon Ave
 Metairie, LA 70001

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Sample Labels

LEAD & COPPER FIRST DRAW COLD DRINKING WATER TAP SAMPLE

PWS ID: LA1234567

SUPPLY: ABC WATER SYSTEM

LA1234567

SAMPLE COLLECTION AND COLLECTOR INFORMATION:

9 / 10 / 09 2:30 Doe, John

Date (mo/day/yr) **Time** (24 hrs) **R** (Resident) **or** **E** (Employee)

TAP CODE (Circle One): **KT** (Kitchen) **LT** (Lavatory)

Street Address: 9999 Eastside Lane

What is wrong on this label?

Form A – Log Sheet

[illegible]

LCR Action Levels

- ▶ **Action Levels**
 - **Lead 0.015 ppm or 15 ppb**
 - **Copper 1.3 ppm**
- ▶ If over 10% percent (90th percentile value) of the samples taken are greater than the above action levels, the water system must then take action

90th Percentile Values

- ▶ Samples are analyzed and a 90th percentile will be calculated
- ▶ 90th Percentile must be less than or equal to the action levels to remain in compliance
- ▶ All results will be included in the 90th percentile calculation (e.g. 28 samples taken x 0.9 = 25.2 or 25th Highest Sample)

No. of Samples	90 th Percentile Value
100	90 th Highest Sample
60	54 th Highest Sample
40	36 th Highest Sample
30	27 th Highest Sample
20	18 th Highest Sample
10	9 th Highest Sample
5	Average of the 4 th and 5 th highest samples

90th Percentile Calculation

- ▶ You Arrange results from lowest to highest (same results from previous slide)
- ▶ Multiply the number of samples times 0.9 (e.g. 10 samples x 0.9 = 9)
- ▶ Select the 9th **highest** result as your 90th Percentile Value

1	0.002 mg/L
2	0.002 mg/L
3	0.003 mg/L
4	0.004 mg/L
5	0.005 mg/L
6	0.008 mg/L
7	0.009 mg/L
8	0.009 mg/L
9	0.014 mg/L
10	0.043 mg/L

Example: Five Samples

Samples Collected

Site	Lead	Copper
1	0.002 mg/L	2.2 mg/L
2	0.010 mg/L	0.1 mg/L
3	0.003 mg/L	0.8 mg/L
4	0.014 mg/L	0.2 mg/L
5	0.002 mg/L	0.6 mg/L

Rearrange Sample Order

	Lead	Copper
1	0.002 mg/L	0.1 mg/L
2	0.002 mg/L	0.2 mg/L
3	0.003 mg/L	0.6 mg/L
4	0.010 mg/L	0.8 mg/L
5	0.014 mg/L	2.2 mg/L

Pb 90th Percentile:

Cu 90th Percentile:

DHH Sampling Procedure

- ▶ DHH will send sampling kit (bottle, instructions, *etc.*) and correspondence
 - 6,000 – 8,000 sample bottles per year
 - 300 – 800 kits per year
- ▶ Water System will establish collection plan based off of previous collection data and make corrections if needed
- ▶ Ship or Transport Samples to the Lab
 - Hand Delivery
 - By Mail
- ▶ Lab will analyze samples and report results to DHH
- ▶ DHH will inform the water system of the results

Lead and Copper Result Letters

- ▶ Non-exceedance Letter
 - State that the water system is in compliance
 - Indicates the next monitoring period for the water system
 - Copy of sample results
- ▶ Resample Letter - additional samples needed
 - Lost Samples, Exceeded Hold Time, *etc.*
 - Ensure minimum number of samples are collected
- ▶ An Action Level Exceedance Letter
 - Evaluation sampling is required to establish treatment
 - Copy of sample results

What if an Exceedance occurs?

- ▶ An Exceedance is not a violation
- ▶ Public Education (LEAD ONLY)– Public needs to be informed of the health affects of lead and information on what they can do (Required Language in the rule itself)
- ▶ Establishment of a treatment process or an equivalent step to reduce lead and copper levels

Corrosion Control Treatment (CCT)

- | | |
|--|--|
| ▶ Initial Tap Monitoring | ▶ Follow-up Monitoring |
| ▶ Corrosion Control Study (Required for large systems)
DHH may require a Corrosion Control Study for small/medium systems | ▶ DHH Review of optimum CCT and designate OWQPs |
| ▶ DHH designates optimum CCT | ▶ Continue Tap Sampling |
| ▶ Water system install optimum CCT | ❖ Completion of steps -
Schedule varies based on the population of the system |

Water Quality Parameters (WQPs)

- ▶ Required for large water systems
- ▶ Required for small/medium water systems after and action level exceedance
- ▶ Used to assist in the determining optimum corrosion control treatment
- ▶ Lead and Copper (Source)
- ▶ pH
- ▶ Alkalinity
- ▶ Calcium
- ▶ Conductivity
- ▶ Water Temperature
- ▶ Orthophosphate*
- ▶ Silicate*
- ▶ *Only if used by the water system for treatment

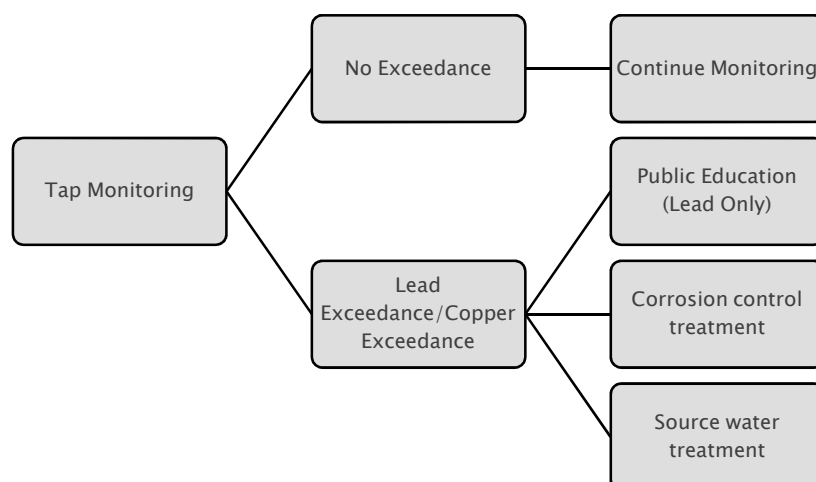
Public Education

- ▶ Required for all water systems that exceed
 - Shortened the mandatory language
 - Delivery requirements to target sensitive populations
 - Materials to all bill paying customers
 - Mandatory language included on water bill quarterly

Public Education Activities

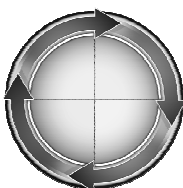
- ▶ Additional Activities
 - Public Service Announcements (PSAs)
 - Paid Advertisements
 - Display information in public areas
 - E-mail to customers
 - Public Meetings
 - Delivery to every household
 - Provide materials directly to multi-family homes
- ▶ CWSs serving greater than 3,300 are required to conduct 3 additional activities
- ▶ CWSs serving 3,300 or fewer are required to conduct 1 additional activity
- ▶ NTNCWs stay the same
 - Materials to every person served
 - Post material in public place

LCR Overview

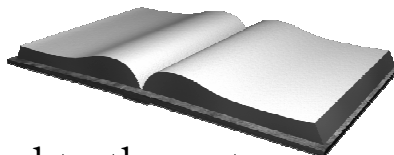


Simultaneous Compliance

- ▶ Overall change in water chemistry
 - New sources
 - New treatment
 - Changes in existing treatment
- ▶ Lead and Copper Changes
 - Decrease in pH
 - Fluctuations in alkalinity and buffering capacity
 - Destabilization of scaling in plumbing



Record Keeping



- ▶ Lab reports shall be mailed to the water system after reviewed by the state
 - Letter giving information on the next monitoring period
 - Lab reports contain all the information on the collected samples
- ▶ Lab results for lead and copper shall be kept for 12 years

System Responsibility

- ▶ The water system has until the end of the monitoring period to collect the minimum number of samples
- ▶ In case a water system has to resample, the system has until the end of the monitoring period or 20 days after being notified, whichever is later
- ▶ If you are unsure of the status of your water system's lead and copper status, please contact the LCR Program Manager

Q & A

- ▶ What are the lead and copper action levels?

- ▶ After the sample is collected from the tap, it needs to be reach the lab within ____ days.
- ▶ If 12 % of your samples exceed the copper action level are you required to do corrosion control treatment? _____

Q & A continued

- ▶ Can you submit bottles to the lab in separate packages?

Make sure to include a sample log sheet with each set

- ▶ Are you required to provide public education to your consumers after a copper action level exceedance? _____

Public Education is required for a lead exceedance only

- ▶ What is your lead and copper schedule?

Questions

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- ▶ Program Manager for:

- Lead and Copper Rule

- Consumer Confidence Report

- Approved Labs